Birds in Wales

Vol. 9 No. 1

Cymdeithas Adaryddol Cymru
Welsh Ornithological Society
2012

BIRDS IN WALES

Vol. 9 No. 1 **August 2012** **ISSN 1359-1649**

Edited by Stephanie J. Tyler

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Front cover photograph of female Merlin at the nest by Roy Blewitt
Rear cover photograph of Aquatic Warbler by Richard Clarke
Welsh translations by Rhion Pritchard

Published in August 2012 by The Welsh Ornithological Society
www.birdsinwales.org.uk
Charity No. 1037823
Price: £7.00

EDITORIAL

It is increasingly difficult to keep up with all the exciting discoveries coming from technological advances such as satellite-tags. The BTO's Cuckoo, Swift and Nightingale stories have really caught the imagination. In mid Wales two Woodcocks were tagged in the winter and they arrived by mid May just west of Moscow and in north Latvia respectively. Much of interest comes too from basic, good old-fashioned, field and ringing studies as this issue shows. A Woodcock ringed in Powys was found in Pervomayskiy, Turkmenistan, a direct line of 4,989 km. This is the farthest east a UK Woodcock ring has ever been recovered.

I hope this issue provides something for everybody. There is an interesting paper on Tree Sparrows on Gower by Richard Facey et al. but a worrying decline of this Red-listed farmland bird is noted as elsewhwere in Wales. Heather Crump and Mick Green describe changes in abundances of upland birds in the Plynlimon SSS1 between 1984 and 2011 and again the news is depressing with declines of many upland species.

Jerry Lewis and Steve Roberts have documented the breeding success of Red-backed Shrikes between 2005 and 2007; this rare species was surprisingly found nesting in the Black Mountains.

The last four papers are by recipients of the 2011 conservation grants: The ever active South Wales Peregrine Monitoring Group report on the fortunes of pairs of Peregrines in 2011. Richard Clarke & Jerry Lewis and Richard Dobbins respectively describe their mist-netting efforts to catch Aquatic Warblers at Uskmouth and Llangorse reedbeds and at the Teifi Marshes during 2011 whilst Paul Haffield gives an account of his experiences studying Merlin in mid and South Wales. In his study area breeding pairs have declined and he points the finger at Goshawk.

Steph Tyler

Tree Sparrow. *Photo: Derek Moore*

Notes on the Conservation, History and Current Status of the Tree Sparrow on Gower

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Summary

The Tree Sparrow *Passer montanus* has been considered a scarce breeding bird on Gower for some time, likely as a result of under-recording. After an absence of definite breeding records for 15 years, a small colony of three pairs was found in west Gower in 2007. The site was abandoned in 2010, and with no further known extant colonies, the Tree Sparrow appears to be extinct as a breeding species on Gower. However, near annual winter records continue in west Gower, with the most recent at the time of writing being in February 2012, suggesting breeding may continue.

Crynodeb

Ystyrid Golfan y Mynydd Passer montanus yn aderyn prin yng Ngŵyr am gryn gyfnod, yn ôl pob tebyg am nad oedd yn cael ei gofnodi'n llawn. Ar ôl 15 mlynedd heb gofnodion pendant o nythu, cafwyd hyd i dri pâr yn nythu yng ngorllewin Gŵyr yn 2007. Peidiodd nythu ar y safle yn 2010, a chan nad oes unrhyw safleoedd nythu eraill yn wybyddus, ymddengys nad yw Golfan y Mynydd yn nythu yng Ngŵyr bellach. Fodd bynnag, ceir cofnodion o orllewin Gŵyr bron bob gaeaf, gyda'r diweddaraf yn Chwefror 2012, sy'n awgrymu y gallai nythu fod yn parhau.

Introduction

The Tree Sparrow *Passer montanus* has declined markedly in Wales (Johnstone et al. 2010), and is considered a Principal Biodiversity Species. This decline has been particularly alarming in Glamorgan where the species' status remains something of an enigma. We describe the history (see also Lucas 2007) and current status of the Tree Sparrow on Gower and efforts to date to conserve the species. Unless otherwise indicated, references to the distribution of Tree Sparrow after 1970 are taken from the relevant copies of Gower Birds (Gower Ornithological Society).

The History of the Tree Sparrow on Gower; 1800s to 2007

No records of Tree Sparrow on Gower appear to exist prior to the mid-1900s (Hurford & Lansdown 1995). The species is not regularly reported on Gower until the 1970's; although the report in 1970 of a well-established population around Harding's Down and Llangennith suggests the species had been present for some time. The first BTO atlas

records it breeding in northwest Gower (SS49), and probably breeding in south west (SS48) and central Gower (SS59) (Sharrock 1976). In 1978 ten pairs were recorded breeding in west Gower; Newton Farm (6 pairs), Llandewi (2) and Harding's Down (2). By 1989 breeding was confirmed in four tetrads, and considered probable or possible in a further six (Thomas 1992) with single pairs noted at Kennexstone and Fairyhill in 1988.

From the late 1980's the species' fortunes changed for the worse, coinciding with an increasing decline in weed rich arable fields on Gower. Gower Birds describes 1990 as a 'poor year' and in 1991 the possibility of extinction in West Glamorgan was voiced. Single pairs were reported at Newton Farm and Norton in 1992; it had disappeared from all the West Glamorgan sites recorded by the first atlas (Gibbons et al 1993) (Figure 1).

Figure 1. Range change in the Tree Sparrow in Wales between the two BTO Breeding Atlases highlighting the species' decline in Glamorgan

1968-72 Breeding Atlas 1988-91 Breeding Atlas

By 1994 records were confined to winter, with a few records away from western Gower; Bishopston in 1995 and in a garden in Sketty in 1996. The species was not recorded in 2000 and 2001.

In 2002 wintering flocks of up to 16 birds were recorded in the Kimley Moor/Pilton area, and two birds seen in July near Ryer's Down suggested Tree Sparrow may have been breeding on the peninsula. More breeding season records followed; in 2004 a single bird was recorded near Newton Farm, while targeted surveys for farmland species for the RSPB Cyrmu's "Aren't Welsh Birds Brilliant!" project recorded birds at Kimley Moor and

Llandewi, and in 2005 at Harding's Down and again at Llandewi.

These later records prompted the formation, in 2006, of the Gower Tree Sparrow Project (GTSP); a coalition, of like-minded volunteers, landowners and managers, working to establish the status and conserve the species on Gower. In 2007, GTSP surveys of sites with historical records of Tree Sparrow found three pairs breeding at the abandoned Newton Farm but not at any other of its former locations. Conservation action aimed at Tree Sparrow began 2007. Detailed below are the results of this up until the winter of 2011/12; these actions are, however, on-going.

The Study Area - Western Gower

The study area consists of small to medium-sized farms, bounded by expanses of common land at Rhossili, Harding's Down, Ryer's Down and Cefn Bryn to the west, north and east, and by the coast to the south. A significant amount of agricultural land is grade 1 or 2, with cattle and sheep grazing being the predominant land use, although some areas of arable and horticulture exist. Dairy farming, in line with national trends, has been in decline for some time; only three dairy farms and two larger poultry farms are left in the Gower Area of Outstanding Natural Beauty. Gower has not been subject to the demands of more intensive production, retaining small to medium sized fields bounded by hedges and traditional stone banks (City and County of Swansea A&B). All sites where conservation action has been targeted provide a mix of farmland habitat; including wetland habitat, such as ditches or ponds, which seem important sources of insect food for nestlings and generally favoured by Tree Sparrow (Lloyd et al 2009, Clark 2010, and Field & Anderson 2004).

Conservation Action

Nest boxes
Despite the walls of the abandoned farms buildings at Newton offering many nesting opportunities for Tree Sparrow, there was concern that they may be out competed by House Sparrow Passer domesticus. In 2007, 20 nest boxes were erected in the hope of creating a more robust and more easily monitored colony. A further 40 boxes were erected at Kimley Moor, Burry Green and Weobley; all boxes were monitored twice annually for evidence of use and cleared in each winter.

Supplementary Feeding
Supplementary feeding was provided for the colony at Newton as reduced over-winter survival, due to a reduced availability of seed, is the likely demographic driving the decline in Tree Sparrow (Siriwardena et al 1998). A second feeding station was established at Harding's Down.

'Conqueror' feeders, filled with a poultry corn mix, were hung from a tree close to the buildings at Newton and near a hedge at Harding's Down. Feeding took place from October to April from the winters of 2007/08 at Newton, and from winter 2008/09 to 2011/12 at Harding's Down.

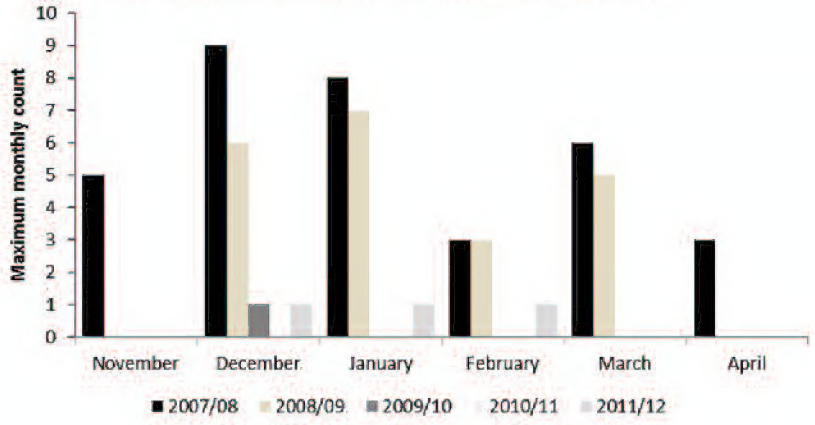
The feeding stations were monitored on an ad hoc basis annually from November to April. The maximum number of Tree Sparrow seen was recorded, with the highest count from each month used to assess use.

Results

Nest Boxes
Although Tree Sparrow will readily use nest boxes (e.g Lloyd et al 2009) the species is known to show a mixed reaction to them (Clark 2010). None of the boxes on Gower were used by Tree Sparrow.

Supplementary feeding
Tree Sparrows took readily to the feeding station at Newton Farm; in the first winter (2007/08) the maximum number recorded per visit ranged from three to nine birds and in the second winter from two to seven (Figure 2). Maximum counts were highest in December and January for both winters. A limited number of visits to ring birds at Newton during the winter of 2007/08 and 2008/09 resulted in five Tree Sparrows being caught. A single Tree Sparrow was reported during the third winter and in the winter of 2011/12. No birds at all were seen in winter 2010/11.

Figure 2: Highest monthly maximum count of Tree Sparrow recorded at the Newton Farm feeding station over five consecutive winters.



No Tree Sparrows were recorded at Harding's Down but there was less observation there.

Discussion

Current Status of Tree Sparrow on Gower; 2007 to 2011

Tree Sparrow continued to breed at Newton Farm until 2009, with adults frequently seen feeding well grown young, but the colony remained at no more than three pairs. It is likely that some of the same individuals bred at the site in successive years; a ringed adult was seen entering an apparently occupied nest in 2008. In 2010, however, no birds bred at Newton, and when they failed to breed again in 2011 the site was considered abandoned. The cause of this is unknown; disturbance at the site was minimal, especially during the breeding season. The abandonment of the site may have been inevitable; half the number of pairs were breeding at the site in 2007 compared to 1978, perhaps as a result of a decline in the quality or availability of nest sites. Tree Sparrows are, however, known to abandon a site only to settle a short distance away (Summers-Smith 1995, Clark 2010). It is plausible that this is what happened to the colony at Newton, although breeding was not confirmed at suitable sites nearby.

In 2009 sacrificial crops were planted, under Tir Gofal, within 2km of Newton. Although Tree Sparrows were not seen using them, these crops could have drawn birds from the feeders at Newton, which would account for the decline in the species attendance at the feeding station.

The Future of the Tree Sparrow on Gower

The species has been considered a very scarce breeding species on Gower for most of the recent past, and this status seems the best that can be hoped for today; the evidence would suggest that the species has been lost from Gower as a breeding bird.

While breeding was not confirmed in 2011, the species continued existence on Gower was; in February 2011 and 2012 single Tree Sparrows visited garden feeders with House Sparrows at Middleton (3km from Newton) and Southgate (10km). In winter 2011/2012 an individual was also seen at the Newton feeding station. It seems unlikely that winter sightings would continue almost annually in western Gower unless there was a small resident population in the area. Alternatively, the burgeoning population in the Tywi Valley could be the source of these wintering birds. Re-sighting one of the several hundred Tree Sparrow pulli colour ringed in the Tywi Valley between 2007 and 2010 (Lloyd et al 2009) would prove this link but to date this has not been achieved.

Despite this worst case scenario there are reasons to be optimistic about the future. Tree Sparrows are notoriously difficult to find when breeding at low densities and more colonies may remain. The contemporary records described above show that the species remains within the study area, so the re-establishment of the Newton colony could be possible. Clark (2010) records the disappearance of a small five pair colony at Porton, on the Caldicot level, after several successful years. The site was deserted between 1998 and 2001 but the colony was re-established in 2002 and expanded to ten pairs. Should no colonies currently exist on Gower, the Twyi Valley could provide future colonists. Although the population seems on the whole characteristically sedentary, immigration from sites over 300km have been recorded (Lloyd et al 2009). The Tywi is only 24km from Gower and dispersal from this population could see the Tree Sparrow return Gower, or

supplement the peninsula's breeding population should this still exist.

Virtually all farms in western Gower are now in agri-environment schemes encouraging less intensive, mixed farming favoured by the species. Further, support is not lacking for the species; all landowners in contact with the GTSP have been enthusiastic and very keen to help. The GTSP remains active, with the nest box and feeding schemes continuing, and further survey worked planned. The authors would like to make a plea for any sightings of the species on Gower to be reported to the project so that it can better deliver much needed action for the species.

Acknowledgements

The Authors would like to thank the land owners and other volunteers involved in the Gower Tree Sparrow Project. We would also like to thank John Lloyd for his help, advice and encouragement in all things Tree Sparrow. RSPB Cymru provided advice and nest boxes at the start of the project, while Swansea LBAP provided funding for more boxes and the feeding stations. We would also like to extend our thanks to John Lloyd and Richard Clarke for their comments on previous drafts.

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Changes in breeding bird abundances in the Plynlimon SSSI 1984 – 2011

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Summary

Plynlimon SSSI in Mid Wales was surveyed as part of the NCC moorland bird survey in 1984. A repeat survey, using the same line transect methods was undertaken in 2011. Large scale declines across nearly all the species that occur on the site were recorded. 12 species have been lost from the site against only three new species having colonised. Whilst the sample size for some species is too small to draw conclusions there has undoubtedly been a drastic reduction in the bird population of the site.

Crynodeb

Gwnaed arolwg o SDGA Pumlumon fel rhan o arolwg adar rhostir yr NCC yn 1984. Ail-gynhaliwyd yr arolwg yn 2011, gan ddefnyddio'r un dull trawsluniau llinell. Cofnodwyd lleihad sylweddol yn nifer bron pob rhywogaeth a geir ar y safle. Collwyd 12 rhywogaeth o'r safle, gyda dim ond 3 rhywogaeth newydd. Er fod maint y sampl ar gyfer rhai rhywogaethau yn rhy fach i dynnu casgliadau, nid oes amheuaeth na fu gostyngiad mawr ym mhoblogaeth adar y safle.

Introduction

The Plynlimon SSSI in central West Wales is a large expanse of upland moorland, bogs and adjacent coniferous forestry plantations, designated for its upland bird assemblage. Over the last thirty years, many upland bird species have been declining in abundance, distribution or both (Eaton et al., 2009). A baseline survey of the Plynlimon was undertaken in the 1984 by the Nature Conservancy Council (NCC) as part of a Wales-wide scheme of surveys. In order to look at changes since 1984, a complete survey of the site took place between May and June 2011.

Methodology

The method described in Stroud et al. (1988) was used for direct comparison between the 1984 and 2011 surveys. Transects were 200 m apart and all species within 100 m on either side of the transect were recorded onto maps. Recordings used the accepted British Trust for Ornithology (BTO) species abbreviations and behavioural notations to indicate breeding status (singing bird, alarming etc.). Maps defining the original transects were used so to stay as close to the original design as possible. Transects varied in length due to the terrain; some were inaccessible due to cliffs or extremely steep angles. Effort to access all transects was comparable to the 1984 survey. The survey used the SSSI

boundary as a guideline to the site extents. The survey was only conducted over one visit, rather than the recommended two in Stroud et al. (1988). This was to reflect the effort of the 1984 survey which was also undertaken in one survey.

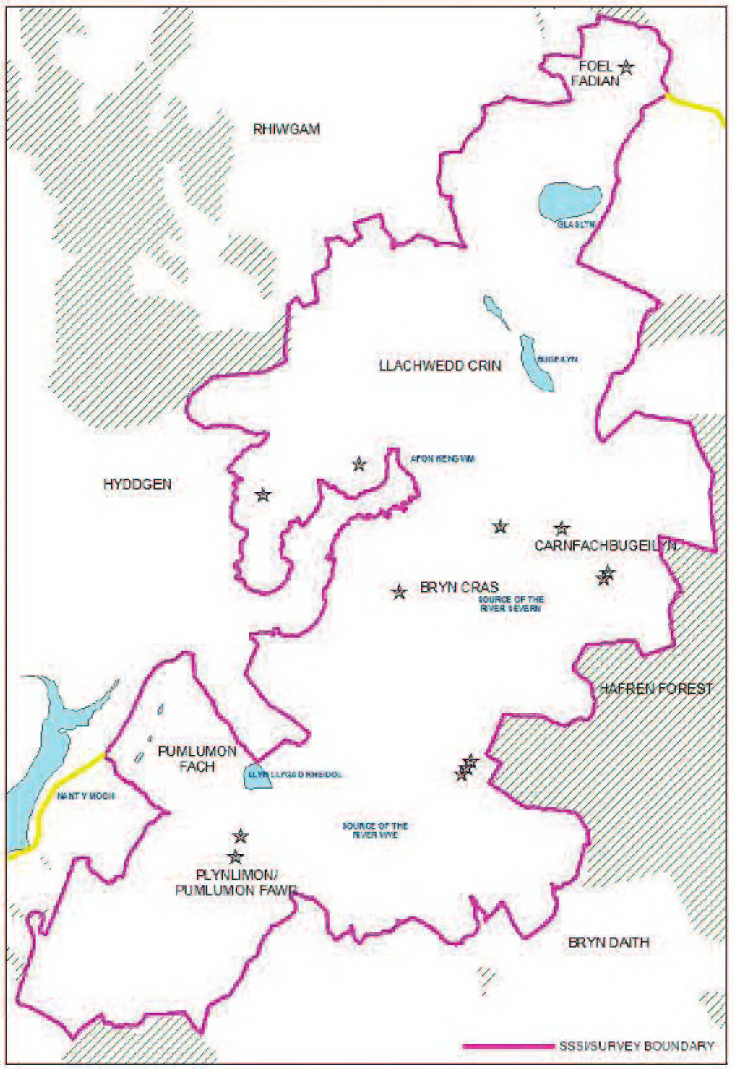

Figure 1. Plynlimon SSSI and Survey location

Results

As in the results from the 1984 survey, species that were using the area for feeding, such as Red Kite *Milvus milvus* were noted but not recorded as part of the survey as they were not considered 'breeding'. Other species that were seen but not recorded include Carrion Crow *Corvus corone*, Raven *Corvus corax* and Merlin *Falco columbarius*. Comparatively,

Table 1. Survey Results: comparison of numbers of breeding pairs, 1984 to 2011.

Species	Latin name	BTO code	1984 count	2011 count	Percent change
Teal	*Anas crecca*	T.	5	0	- 100
Canada Goose	*Branta canadensis*	CG	0	1	+ 100
Mallard	*Anas platyrhynchos*	MA	1	0	- 100
Hen Harrier	*Circus cyaneus*	HH	0	1	+ 100
Buzzard	*Buteo buteo*	BZ	1	1	0
Kestrel	*Falco tinnunculus*	K.	1	0	- 100
Peregrine	*Falco peregrinus*	PE	1	1	0
Red Grouse	*Lagopus lagopus*	RG	27	14	- 48
Coot	*Fulica atra*	CO	1	0	- 100
Golden Plover	*Pluvialis apricaria*	GP	13	1	- 92
Curlew	*Numenius arquata*	CU	2	0	- 100
Common Sandpiper	*Actitis hypoleucos*	CS	10	1	- 90
Black-headed Gull	*Chroicocephalus ridibundus*	BH	65	0	- 100
Cuckoo	*Cuculus canorus*	CK	8*	0	- 100
Skylark	*Alauda arvensis*	S.	287	134	- 53
Swallow	*Hirundo rustica*	SL	1	1	0
Tree Pipit	*Anthus trivialis*	TP	2	3	+ 50
Grey Wagtail	*Motacilla cinerea*	GL	4	1	- 75
Pied Wagtail	*Motacilla alba yarrellii*	PW	8	1	- 88
Wren	*Troglodytes troglodytes*	WR	5	3	- 40
Redstart	*Phoenicurus phoenicurus*	RT	3	0	- 100
Whinchat	*Saxicola rubetra*	WC	21	4	- 81
Stonechat	*Saxicola torquata*	SC	1	0	- 100
Wheatear	*Oenanthe oenanthe*	W.	49	16	- 67
Ring Ouzel	*Turdus torquatus*	RZ	7	0	- 100
Mistle Thrush	*Turdus viscivorus*	M.	1	0	- 100
Willow Warbler	*Phylloscopus trochilus*	WW	2	1	- 50
Chaffinch	*Fringilla coelebs*	CH	2	0	- 100
Reed Bunting	*Emberiza schoeniclus*	RB	0	1	+ 100

* Registration only

Raven and Crow were seen in flocks in the 1984 survey but only a few individuals were seen in the 2011 survey. In addition, Meadow Pipit *Anthus pratensis* were widespread, as in the 1984 survey. However, this species was not recorded as experience has shown that is difficult to evaluate territorial pairs.

Discussion

Whilst some population changes involve few individuals that could just be within annual fluctuations, in general the results show a real and serious decline in the overall bird population of Plynlimon and in line with or more serious than Wales- wide population trends (Johnstone et al., 2010).

Golden Plover *Pluvialis apricaria* are in a period of widespread decline over the whole of Wales, with an 83 % decrease between 1982 and 2007. This correlates to the 92 % decline witnessed for Plynlimon between 1984 and 2011. Curlew *Numenius arquata* across Wales have declined by 87 % between 1993 and 2006, and although only ever present in small numbers on Plynlimon they have now disappeared completely from within the SSSI. The 90 % crash in numbers of Common Sandpiper *Actitis hypoleucos* is considerably more than the UK national trend of 38 % decline between 1975 and 2008 (Baillie et al., 2010). This a cause for concern and indicates that the Common Sandpiper may merit more than an Amber listing if this trend is matched elsewhere in Wales.

Other birds with serious declines include Wheatear *Oenanthe oenanthe* and Whinchat *Saxicola rubetra*, both of which especially the Wheatear - have declined by greater amounts than the UK national trends. The national trend (1994 2009) for Wheatear is 5 % decline and the Whinchat 57 % decline (Baillie et al., 2010).

Ring Ouzels *Turdus torquata* have been lost from the site. The population in Wales had decreased by 69 % between 1999 and 2006 and were already absent from Plynlimon by 2006 (Green, 2007).

Although Skylark *Alauda arvensis* are often found in high densities in upland Wales (Green, 2005) numbers on Plynlimon were always at lower densities than some other Mid Wales sites, with 7.5 pairs per square kilometre in 1984 but numbers have still declined by 53 % to 3.5 pairs per square kilometre in 2011.

There were less Crows recorded and no records of Rooks in 2011. Black Headed Gulls *Chroicocephalus ridibundus*, present as one colony within the SSSI in 1984, have gone completely. In addition two other known colonies just outside the SSSI have also gone since 1984. This may indicate a general reduction in food availability across the site.

Although in general the picture is one of a general sorry state of declining bird numbers across the board, there have been three gains. Hen Harriers *Circus cyaneus* have colonized the site, reflecting their general population rise of 59 % (1988 to 2004) and range expansion in recent years. Canada Geese *Branta canadensis* are also new to Plynlimon, representing their recent expansion across upland Wales. Reed Buntings *Emberiza schoeniculus* were the only other gain to the site and appear to have expanded

their range into the Welsh uplands in recent years (Green, in prep).

The reasons for the declines are in most cases unclear, and it is especially unclear as to why decreases on Plynlimon appear to be greater than overall trends. Superficially the habitats appear unchanged since 1984. The SSSI designation has meant that the site was spared agricultural improvement and afforestation that has affected many upland areas. Whilst it has suffered from high grazing pressure this is unlikely to have been greater than at most other sites across Wales.

Acknowledgements

The survey was funded as part of a KESS studentship at Aberystwyth University supported by Ecology Matters. Thanks go to Sian Whitehead, CCW for supplying the 1984 data. Thanks also go to all those who helped to complete this survey: Richard Lucas, Karen Lucas, George Lucas, Ben Lucas, Josh Brown, Jonathon Brownett, Chris Draper, Sarah Perry and Alberto Di Dio.

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Red-backed Shrike breeding in Wales

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Figure 1. Adult male and two fledged young Red-backed Shrike in Black Mountains, 2005. *Photo: Steve Roberts*

Summary

Red-backed Shrikes were discovered breeding in the Black Mountains (Gwent/Powys border of South Wales) in 2005. They returned to breed successfully in 2006 but two breeding attempts failed in 2007, due to the adverse weather. They were not seen in subsequent years. This note is intended to document this extraordinary event.

Darganfuwyd y Cigydd Cefngoch yn nythu ar y Mynyddoedd Duon (goror Gwent/Powys yn ne Cymru) yn 2005. Dychwelodd y pâr i nythu yn 2006, ond methodd dwy ymgais yn 2007, oherwydd tywydd anffafriol. Ni welwyd hwy yn y blynyddoedd wedyn. Bwriedir y nodyn yma i roi manylion am y digwyddiad hynod hwn.

Breeding history in UK

The decline of the Red-backed Shrike *Lanius collurio* in Britain is well documented, 1989

was the first year in recorded ornithological history when breeding was not recorded somewhere in the UK (Gibbons 1993). Since then, confirmed breeding has been sporadic, in England in 1991 and 1992 (Brown & Grice 2005), in Scotland in 1999, 2004 and 2005, with single pairs or singing males in most years (Ogilvie 2001, Holling 2007, 2008, Forrester & Andrews 2007). In Wales, regular breeding ceased in Caernafonshire as long ago as 1952, but a single pair bred in Monmouthshire in 1981. Records of pairs in Carmathenshire in the early 1980's and Glamorgan in 1990, did not result in confirmed breeding (Lovegrove et al. 1994).

The discovery

On 31 July 2005, Phil Quinn, an ecological consultant was walking in the Black Mountains and discovered a male Red-backed Shrike with two recently fledged young. JL was informed, and on the evening of 2 August, he (somewhat sceptically) visited the site, and was amazed to view the male and two youngsters, some 100 m from where they had been originally found.

The two young shrikes were obviously very recently fledged, with short tails and weak flight. They were often extremely furtive and difficult to observe, and it is possible that additional fledglings may have remained unseen. The male was conspicuous from some distance, perched high upon Hawthorn *Crataegus monogyna* bushes, hawking insects or flying swiftly to ground to collect beetles. There was no confirmed sighting of the female; on 12 August, the family could not be found and it is believed they had started their migration south.

Breeding calendar 2006

Male Red-backed Shrikes have a distinctive advertising call, which ceases as soon as a female arrives (Cramp 1993). We made occasional visits to the site from 16 May, and on 8 June, the male was first seen, giving this call from a vantage point on a hawthorn, in the immediate vicinity of the 2005 nest. It is not possible to ascertain how long he had been present, except to say that he was not seen on 25 May. He continued his calling for the next 15 days, interspersed with bursts of song, always from a prominent position, and occasionally singing with an insect in his bill. The authors are certain that the female turned up for the first time at mid morning on 23 June. The male had been under observation for some time on that day, giving his usual advertising call, when he suddenly flew rapidly to a bush some distance away and fell silent. He was then observed with a female, and his behaviour changing noticeably as he continuously escorted and fed her, and he was not heard to make the advertising call again. By 25 June, the pair was never as "together" as on the 23rd and the male's apparent "excitement" was no longer apparent. Both birds were entering the nesting bush and although no nesting material was seen to be taken in (because of the viewing distance), it is believed that they were nest building, interspersed with bouts of the male courtship feeding the female. Both birds were now considerably less conspicuous and could easily have been overlooked by a casual observer. On 1 July, the female was observed loafing and preening on a bush adjacent to the nesting bush and then flew to the nest for 1½ hours. The male was observed taking food into the nest bush suggesting that egg laying had commenced. On

9 July the nest was inspected, under license, the female sitting tight on the nest containing four eggs. When flushed, she flew off and both birds remained silent. She was observed returning to the nest area immediately we had departed the immediate area. On 16 July the behaviour indicated that the eggs had probably not hatched, but on 20th the male was feeding the hen feverishly - entering the bush with food four times in 10 minutes. The female could be seen sitting high on the nest, wing shivering as the male fed her. On 22nd the nest was inspected whilst the female was some 50 m away, and contained four chicks - their development suggested they were about three/four days old. There was again no reaction from the adults.

Figure 2. Four healthy chicks of Red-backed Shrike, 2006. *Photo: Steve Roberts*

The four chicks were ringed on 25 July, when they had developing feathers and were quite active (their mass ranged from 24.1 – 27.6 gm). The parents perched about 40 m away and remained silent. Both were still quiet and unassuming when carrying items of food to the nest on 27th. On 3 August at least two fledglings were seen (in a bush adjacent to the nesting bush) and were fluttering weakly. By 8 August all four chicks had fledged but were still close to the nesting bush. The chicks seemed to have been split between the adults, with two chicks being fed by the female (often with wasps and bees pulled from a larder, one of which was adjacent to the nest bush), whilst the male fed the other two chicks in a different bush (with large beetles caught from the ground). On 14 August all four young were flying well but still separated between male and female. Allowing 14 days for the incubation period and for the fledging period, incubation would have commenced on 5 July and hatching would have taken place on 19th. The fledging date was just a few days later than in 2005.

Breeding calendar 2007

In 2007, we were amazed to find the male was again back on territory on 3 June, and from his quiet and unobtrusive behaviour we assumed that the female was also present. He was visible only occasionally through the low cloud and mist that swept across the hill. On 6 June the male was observed entering the same bush six times in 1¼ hours, always by the same route and remaining only for a few seconds. It was presumed he was feeding an incubating or laying up female, and she was observed leaving the bush briefly whilst the male perched on top, counting back from the hatching date we calculate that the clutch was completed on 8 June. On 9th, the male fed the female with a beetle, in a bush adjacent to the nesting bush. A nest inspection on 12th revealed six eggs. The hen sat very tight and called quietly when flushed, and called again when she was joined by the male in an adjacent bush. She was watched returning to the nest, escorted by the male.

Figure 3. Nest with six Red-backed Shrike eggs, 2007. *Photo: Steve Roberts*

The well documented very wet, windy and cold summer of 2007 proved impossible for the shrikes. We took advantage of a break in the weather on 22 June to look at the nest, which contained at least four recently hatched chicks and one egg. The male was seen to take food to the nest just twice in ten minutes, but by 27th (after further days of rain) he was visiting with beetles and grubs every few minutes. Worryingly, he had to fly considerably greater distances (than in 2006) to collect food in the inclement weather, often foraging on the floor rather than from a look out post. On 29th, seven days after

hatching, the nest was inspected with a view to ringing the chicks, but we found three poorly developed chicks (with no feather growth and eyes still closed), and one freshly dead chick. They had the appearance of being only some three/four days old, despite their known age. The hen was still brooding them, and as there were no un-hatched eggs, we presume that they had all hatched and two other chicks had already perished and been removed. The contrast between these under nourished and under developed chicks, compared to chicks of a similar age in 2006 was stark, and indicated just how difficult the adults were finding it provisioning food in the appalling weather.

Figure 4. Three poorly developed Red-backed Shrike chicks, 2007. *Photo: Steve Roberts*

On 4 July, again after days of heavy rain, it was apparent from the behaviour of the birds that the nest had failed, but the pair were already visiting another hawthorn bush about 40 m away. By 8th they were actively building a nest there, and the female was seen to dismantle material from the old nest to utilise in the new one. The male was feeding the female on the nest with beetles on 14 July and on 17th it contained three warm eggs. This was the first opportunity we had to check the first nest (without causing disturbance to their replacement attempt) and found it to be empty.

Sadly the poor weather continued (it was especially wet on the night of 19/20th and for the next two days) and by the 29th this second nest and eggs had been abandoned and there was no sign of the birds. The eggs were becoming embedded in the nest lining, two contained part developed chicks and the third showed no development. The authors have no doubt that if the weather had been kinder the shrikes would have bred successfully for another year, as their persistence was admirable.

Habitat

Red-backed Shrikes are described as breeding in a variety of habitats (Cramp 1993), characterised by the presence of scrub for perching and nesting, with open ground for hunting. The Black Mountains consist of a series of parallel valleys running more or less north to south. The lower ground is farmland (pasture with small broadleaved woodland areas) or has been planted as coniferous woodland, which in some parts are now into their second rotation. The breeding site is gently sloping heathland, with an east-south-east aspect, at an altitude rising from 500m to the summit ridge at 620m. The dominant vegetation is a mosaic of Heather/Ling *Calluna vulgaris* and Bilberry *Vaccinium myrtillus*, with Bell Heather *Erica cinerea* and Crowberry *Empetrum nigrum*, and patches of bracken *Pteridium aquilinum*, Purple Moor Grass *Molinia caerulea* and occasional wet flushes of rush *Juncus sp*., containing bogmoss *Sphagnum sp*., Bog Asphodel *Narthecium ossifragum* and Cross-leaved Heath *Erica tetralix*. Widely scattered Hawthorn bushes are present, with two distinct "clumps". Numerous small streams cross the area (mainly underground) and most of the hawthorns are associated with the lines of these streams. The habitat is similar to that where the species bred in Devon in 2010 and 2011 (M Davies, pers. comm).

The larger Hawthorn clump contained about 65 bushes (in about half a hectare), at an altitude of 500m. The smaller one consisted of about 30 bushes (in about 0.25 ha), at 530m. The height range was generally between 1 and 3 m, but there were also many other browsed hawthorns barely above the height of the moorland vegetation. Even within these clumps the bushes were in small groups rather than evenly spread. In Wales, these lower slopes of the moorland (just above the enclosed land), are termed ffridd. There are some 9,600ha of upland heath in the Brecon Beacons National Park (approx. 14% of the Welsh total), most of which is found in the Black Mountains (Anon). The area is populated with typical upland heath species, and the shrikes shared this habitat with Merlin *Falco columbarius*, Red Grouse *Lagopus lagopus scotica*, Snipe *Gallinago gallinago*, Skylark *Alauda arvensis*, Meadow Pipit *Anthus pratensis*, Wheatear *Oenanthe oenanthe* and Whinchat *Saxicola rubetra*.

Nest sites

All nesting bushes were within the "clumps", rather than in isolated Hawthorns. The nests in 2004-06 were in the larger clump, and the 2007 nests were in the smaller, approx 300m away. After the birds had left in 2005, a thorough search was initiated for the nest, and it was found some 200m away from the area that the fledged family had been frequenting. The nest was at a height of about 1.2m, deep in the centre of the 1.8m hawthorn bush. It was constructed mainly of heather stems, moss and sheep's wool, lined with horse hair and grasses and contained many beetle cases.

The 2006 nest was just 15m away, at a height of 1.2m, in a 1.5m bush. In searching for this nest, an even older nest (we presume from 2004) was found deep in a bush just 2m away (also 1.2m in a 1.5m bush). In 2007 the nesting area had moved to the second clump with more dispersed thorns. The nest was situated about 1.8m high, in a 2.1m bush, but not deep inside the bush (as in 2004/05/06), but just inside the outer canopy.

The replacement nest was some 40m away, 1.5m high in a 1.8m bush and was also just inside the top canopy of the bush.

Food Supply

The summer of 2006 was reasonable and there were many fine sunny days on the moors. The male appeared to find food with ease, often flying only a few metres from his look out bush to the ground to catch beetles – dor beetles (probably *Typhaeus typhoeus*), being a major food source, or flying a short distance into the air to snap flying insects – mainly St Mark's Flies *Bibio marci*. There were considerable numbers of St Mark's Flies on 3 August 2006, when a large green caterpillar (probably *Noctuid sp*) was also seen to be taken. By the time of the 1968-72 National Atlas it had become a bird primarily of the lowland heaths of southern Britain (the New Forest, Surrey and the Brecks), and a shortage of large, sun-loving insects was considered to be one reason for the decline. The final retreat from England was by way of these areas with the driest and most continental climates. The ease with which the adults were able to find large insect prey in the Black Mountains, casts doubt about the availability of large insect prey being a main limiting factor. Certainly, the notion that a shortage of suitable food may be a factor in the demise, seemed to carry little weight at this upland site. Perhaps one of the greatest puzzles, however, is why the traditional heath-land sites (seemingly little changed), were unoccupied, whilst this uncharacteristic upland area should support several years of successful breeding.

Same birds?

What makes these records so remarkable is that the birds seemed to have bred at this moorland site in Wales for at least four years. Although the adult birds were not individually recognisable, there can be no doubt that the same male was involved, as it is the males that establish territory and attract a female (Cramp 1993). The timing of the breeding events and the location of the nests within the same clump of trees in 2005 and 2006 suggests that the same female was also involved in these years. In 2007 however, there was a shift in nesting location (if the species was more common, this might even have been far enough away to constitute a different territory), a much earlier start to the nesting cycle and a different positioning of the nest with the bush. All of these might suggest that a different female was involved. The eggs in 2006 and 2007 showed some differences in colour but, given the great variation in colour and pattern with this species (Cramp 1993), it is likely that the difference is within the normal range of an individual female. This is supported by the fact that the two clutches in 2007 were slightly different - with a more creamy background, and a denser zone of spotting on the replacement clutch.

Disappointingly (but not surprisingly), there was no sign of the birds in 2008. This was probably a good thing, as the summer of 2008 proved to be worse than 2007, and one of the wettest and coldest on record. The occasions we spent observing these delightful birds served to highlight what a sad loss the species is to the countries avifauna.

Acknowledgements

We are grateful to Martin Anthony, Julian Branscombe and Stephanie Tyler for assistance with identifying some of the insects and plants.

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Interim Summary of South Wales Peregrine Monitoring Group for 2011

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A total of 111 different breeding ranges have been identified in our south-central Wales study area. A number of these ranges have not been used for many years, and there are 20 that have no evidence of occupation for at least five consecutive seasons; these we have classified as “Former Ranges”. Two new breeding sites were identified in 2011.

Of the 91 “existing ranges”, 82 were checked for evidence of occupancy and breeding in 2011 (i.e. 90%). Of these, 70 (85%) were occupied by either single birds or pairs. Breeding was confirmed at 40 territories (i.e. there were records of incubating/brooding birds, eggs, chicks, fledglings and/or a used nest). Breeding probably occurred at seven territories (i.e. there were records of copulation and/or sightings of a pair on two or more visits between March and July). Breeding possibly occurred at four territories (i.e. sightings of a pair on territory between March and July). The remaining 19 territories were classified as occupied (i.e., sightings of a single bird between March and July, prey remains found and/or pigeon rings from the current year).

Of the 40 territories where breeding was confirmed, 35 were successful in producing at least one fledged chick. The breeding outcome was known for 57 occupied ranges and 22 of these did not produce any flying young. Birds attempted to breed at four of these 22 ranges but the nests failed, whilst it was not known if breeding was attempted or if nests had failed at the other 18 ranges. The outcome was not determined at a further 11 occupied ranges.

The fledged brood size was determined at 31 ranges that were known to be successful; giving a mean fledged brood size of 2.4 chicks per successful nest (range 1 to 4 chicks). Overall, the 2011 breeding season was good in our study area, with nesting success and fledged brood sizes being the highest recorded in the last five years.

An example of a site record form is given below:

CRAIG CWM-DU OS Grid Ref: SN9421
Vice County: Breconshire
Bird Recording Area: Breconshire
Administrative County: Powys

Usually two pairs nesting 2 km apart in the Brecon Beacons [i.e., Cwm-Du and Craig Cerrig Gleisiad] between 1900 and 1955 (Morrey Salmon quoted in Ratcliffe (1980).

1900-1902: First recorded breeding in Breconshire (probably in reference to this site or

possibly Craig Cerrig Gleisiad) [JJ Neale, 1902]

1903: One chick, just hatched and an addled egg on 14th May [J. Walpole-Bond Diaries]

1904 -1906: No information

1907: Pair present on 12th March (Walpole-Bond Diaries). Present on 12th March, Ravens here too [N. Gilroy Diaries]

1908-1909: No information

1910-1911: No information

1912: c/4 taken by G. Tomkinson and A. M. Chance on 6th April [G. Tomkinson collection]; pair present on 13th March (J. Walpole-Bond Diaries).

1913: Peregrine eyrie in Raven's nest with c3 on 11th April but eggs gone by the 13th April (Tomkinson Diaries).

1914: Eyrie with three eggs on 8th April, substituted with coffeed hen's eggs with fourth (c4) egg taken on the 11th April c/4 (Tomkinson Diaries); taken by A. M. Chance on 11th April [R. Conner].

1915: No information

1916: c/4 taken by A. M. Chance and G. Tomkinson on 19th April but found with three eggs on 13th April (Tomkinson Collection).

1917: c/4 taken by A. M. Chance on 22nd April (Tomkinson Diaries).

1918: No information

1919: c/4 taken by A. M. Chance, G. Tomkinson and others on 21st April [G. Tomkinson collection].

1920: Single egg in eyrie at Nant Cwm-du on 14th April with c/4 taken on the 21st April (Tomkinson Diaries).

1921-1922: No information

1923: Slightly incubated c/4 taken on 20th April from Nant Cwm-Du, Brecon Beacons (H.A. Gilbert Collection, Hereford Museum).

1924: Occupied but no eyrie found on the 18th April (Tomkinson Diaries).

1925: Nest with two eggs on ledge on 18th April found by C.G.S. Ingram, H. Morrey-Salmon and Bert Evans (Ingram Papers); empty eyrie found at Nant Cwm-du on the 11th April (Tomkinson Diaries); c/3 slightly incubated about one week taken on 27th April and eggs subsequently given to J. Walpole-Bond in 1928 (H.A. Gilbert Collection, Hereford Museum).

1926: Single egg in eyrie at Nant Cwm-du on 7th April (Tomkinson Diaries).

1927: Scrape found at Nant Cwm-du on 10th April (Tomkinson Diaries).

1928: c/2 taken by J. W. Tomkinson on 14th April, one egg on 9th April [G Tomkinson collection].

1929: c/3 taken by J. W. and G. Tomkinson on 14th April [G Tomkinson collection].

1930: No sign of occupation on 11th April (Tomkinson Diaries)

1931: No eyrie located on the 11th April (Tomkinson Diaries)

1932-1934: No information

1935: Pair seen on 7th March [S. Sloane-Chesser Diaries]

1936: No information

1937: c/4 taken on 18th April by J. W and G. Tomkinson with Parkes [G. Tomkinson collection]; c/4 taken by Butler on 17th April [S. Sloane-Chesser Diaries].

1938: c/4 taken by J.W. and G. Tomkinson with Arthur Brook on 15th April (Tomkinson Diaries).

1939: c/4 taken by G. and J. W. Tomkinson with N.B. Coltart on small cliff at western end of Nant Cwm-dhu. Taken on 30th April [G. Tomkinson collection].

1940-1949: No information

1950: Bred, c/4 taken on 16th April from old Raven nest by W. Hobson with N.B. Coltart [W. Hobson Collection, RMS].

1951: No information

1952: Fresh clutch taken on 29th April by W. Hobson [S. Sloane-Chesser Diaries].

1953-1956: No information

1957: Single male seen on 15th April but no evidence of breeding [L. Eccles Diaries].

1958-1959: No information

1960: Pair present, female on empty scrape on 20th April [S. Sloane-Chesser Diaries].

1961: Bred but failed, broken egg shell found below empty eyrie on 31st March [T.A. Waddell Diaries]: Bred, unknown number of young reared [D.A. Ratcliffe].

1962: Pair present and believed breeding on 27th April, pair seen on 10th June and one juvenile seen on 8th August (H. Morrey Salmon, 1962 Peregrine Survey); Pair present but no evidence of breeding on 27th May (Dr. D.B. Richards); Two young reared [D.A. Ratcliffe]; Bred but failed, broken egg shells found [T.A. Waddell Diaries]; No Peregrines seen, two old kills and one pigeon ring found [S. Sloane-Chesser Diaries].

1963: Pair present, no nest [D.A. Ratcliffe].

1964: Pair present, no nest [D.A. Ratcliffe].

1965: No sign of occupation on 16th April [D.A. Ratcliffe]: Pair present, no nest [T.A. Waddell Diaries].

1966: One bird present, no nest [D.A. Ratcliffe].

1967: One bird present, no nest [D.A. Ratcliffe].

1968: Pair present, no nest [D.A. Ratcliffe].

1969: Pair present, no nest [D.A. Ratcliffe].

1970: No information

1971: Surveyed but no sign of occupation [D.A. Ratcliffe].

1972-1977: No information

1978: c/3 taken by T.R. Waddell on 16th April [Oxfordshire Museums Store] – probably a false year given for a clutch taken after 1982; Surveyed but no sign of occupation [D.A. Ratcliffe]: Adult present [].

1979: Surveyed but no sign of occupation [D.A. Ratcliffe].

1980-1981: Surveyed but no sign of occupation [D.A. Ratcliffe].

1982: No information.

1983: Bred but no further details [G. Williams]

1984: Bred, clutch taken [D.A. Ratcliffe]; confirmed as robbed [RSPB Investigations data].

1985: Bred, c/3 laid but failed at chick stage [D.A. Ratcliffe].

1986-1988: No information.

1989: Adult female present on 21st February [C. Richards, G. Walters].

1990: Bred but confirmed as robbed [RSPB Investigations data].

1991: Two young reared (D.A. Ratcliffe); Bred (P. Haffield); bred, four birds reported (RSPB Data).

1992: Bred, at least one fledgling seen [M. Peers]; Pair present on 17th June [C. Richards].
1993: Three chicks fledged (RSPB Data); Bred, at least two fledglings seen (M. Peers); Bred, two fledged young seen on 2nd July (H. Nicholls).
1994: Two chicks fledged (RSPB Data); Bred, at least one juvenile seen (M. Peers).
1995: No information
1996: Occupied and probably bred, pair seen copulating (RSPB Data).
1997: One chick fledged (RSPB Data)
1998: One chick fledged (SWPW); c/4 laid, at least one chick fledged (RSPB Data).
1999: Bred, evidence of success in late summer (A.M. Lawrence); probably bred (RSPB Data).
2000: Bred successfully, c/3 laid at least one chick fledged (SWPMG)
2001: One chick fledged [SWPMG]
2002: Two chicks fledged (M. Peers)
2003: Two chicks fledged (SWPMG); three birds seen, possibly one adult and two juveniles on 22nd July (RSPB Data)
2004: One chick fledged (SWPMG)
2005: One chick fledged (SWPMG)
2006: Two chicks fledged (SWPMG).
2007: Two chicks fledged (SWPMG).
2008: Two chicks fledged (SWPMG).
2009: Two chicks fledged (SWPMG).
2010: Occupied and possibly bred but may have been robbed as two suspicious characters were seen on the crag early in the season – see 2010 SWPMG report (SWPMG).
2011: Two chicks fledged (SWPMG).

Ring Recoveries

Total of 203 rings recovered. PRE-PESTICIDE ERA: rings recovered from 1910s to 1940s. PESTICIDE ERA: conflicting information on last recorded breeding attempts of the pesticide era suggest that breeding did not take place after 1962. POST-PESTICIDE ERA: estimated year of first breeding in the post-pesticide era = 1984.

Table 1. Ringing recoveries between the 1900s and 2010

	...0	...1	...2	...3	...4	...5	...6	...7	...8	...9	Totals
190...											
191...							1	0	2	0	3
192...	0	0	0	0	2	1	0	1	0	0	4
193...	0	1	2	1	2	5	2	2	1	5	21
194...	0	1	0	1	0	2	2	0	0	0	6
195...	3	2	3	0	1	0	0	2	2	5	18
196...	2	1	1	1	2	0	0	0	0	0	7
197...	0	0	0	0	0	0	0	0	0	0	0
198...	0	0	3	3	6	2	4	5	6	5	34
199...	2	7	7	11	16	13	14	17	21	2	110
200...	0	0	0	0	0	0	0	0	0	0	0
201...											
Totals											203

Reference

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Aquatic Warbler. *Photo: Richard Clarke*

Autumn Passage Monitoring for Aquatic Warbler at two reedbeds in South Wales - 2011

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Summary

A dedicated monitoring programme for Aquatic Warbler *Acrocephalus paludicola* was undertaken during autumn 2011 at two reedbeds in Wales, at the Newport Wetlands, Uskmouth, Newport and at Llangasty, Llangorse Lake, Powys. The Goldcliff Ringing Group and Llangorse Ringing Group undertook the monitoring work with 11 visits being undertaken at Uskmouth and at two different reedbeds at Llangorse (Jetty site & RB2) 14 and six visits were made respectively. Monitoring was mostly undertaken during August when mist-nets were set and tape lures played in an attempt to capture birds.

This approach to monitoring for the species has been undertaken at both sites for several years with good results. However, during 2011 no Aquatic Warblers were trapped at either Uskmouth or Llangasty. Nevertheless, the monitoring work recorded the presence and passage movements of other key reedbed species including Grasshopper Warbler *Locustella naevia* (Red Listed/PBS), Reed *Acrocephalus scirpaceus* and Sedge Warbler *Acrocephalus schoenobaenus* and Amber listed Bearded Tit *Panurus biarmicus* (Uskmouth only) and Reed Bunting (PBS). The future monitoring for Aquatic Warbler at these sites using this technique is strongly recommended.

Crynodeb

Ymgymerwyd â rhaglen fonitro Telor y Dŵr Acrocephalus paludicola yn ystod hydref 2011 mewn dau wely cyrs yng Nghymru, Gwlyptiroedd Casnewydd, Aberwysg, Casnewydd a Llangasty, Llyn Syfaddan, Powys. Gwnaed y gwaith monitro gan Grŵp Modrwyo Allteuryn a Grŵp Modrwyo Llangors, gyda 11 ymweliad ag Aberwysg a 14 a 6 ymweliad â dau wely cyrs ar Lyn Syfaddan (safle'r jeti ac RB2). Gwnaed y gwaith ym mis Awst yn bennaf, gan osod rhwydi a defnyddio tapiau i geisio dal adar.

Defnyddiwyd y dulliau hyn ar y ddau safle am rai blynyddoedd, gyda canlyniadau da. Fodd bynnag, yn ystod 2011, ni ddaliwyd Telor y Dŵr yn Aberwysg na Llangasty. Er hynny, cofnododd y gwaith monitro bresenoldeb a symudiadau adar eraill y gwelyau cyrs, megis y Troellwr Bach *Locustella naevia* (Rhestr Goch/RhBB), Telor y Cyrs *Acrocephalus scirpaceus* a Thelor yr Hesg *Acrocephalus schoenobaenus*, Titw Barfog *Panurus biarmicus* (Rhestr Ambr, Aberwysg yn unig) a Bras y Cyrs (Rhestr Ambr/RhBB). Argymellir yn gryf parhau'r monitro ar gyfer Telor y Dŵr gan ddefnyddio'r dechneg yma yn y dyfodol.

Introduction

Aquatic Warbler *Acrocephalus paludicola* is the rarest and only globally threatened passerine bird in mainland Europe. It is included on Annex 1 of the EU Birds Directive, in Appendix II of the Bern Convention and in Appendix 1 of the Bonn convention. It is a priority species for conservation action in the UK having its own Biodiversity Action Plan and is red listed as a bird of conservation concern. In Wales, it is included in the Section 42 list of species of principal importance for conservation of biological diversity in Wales (Natural Environment & Rural Communities Act 2006).

Action for Wildlife (CCW 1997) identified eight sites in Wales where the Aquatic Warbler had been recorded including Llangorse Lake, but not the Uskmouth reedbeds at Newport. Before dedicated survey work started at Uskmouth, four Aquatic Warblers had been recorded at the reedbeds (singles in 1996 and 1997 and two in 2001). The Goldcliff Ringing Group started survey work in earnest during August 2002 and has surveyed the site regularly up to and including 2010. During this time seven birds have been recorded at the site (Clarke 2006, Clarke 2009 and Clarke & Lewis 2010).

At Llangorse Lake, four birds were caught in the mid 1970s (prior to the formation of Llangorse Ringing Group), dedicated monitoring for the species has subsequently resulted in six birds being trapped up to and including 2010 (Lewis 2009, Lewis & Clevely 2008, Clarke & Lewis 2010). A single bird in 2009 was at the site known as RB2; all others were at or near the jetty site.

To assess whether the Aquatic Warbler continued to be present during passage at Uskmouth and Llangorse Lake, survey work was undertaken by the Goldcliff Ringing Group and Llangorse Ringing Group during 2011.

Method

Aquatic Warblers are a secretive species that can be overlooked easily if relying on observation as a means of establishing their presence. Catching birds by setting mist-nets, has however proved to be very effective and CCW's Action for Wildlife (1997) and more recently St Pierre and Lock (RSPB 2008) recognise the importance of bird-ringing studies as a means of identifying key sites used by the Aquatic Warbler. The use of mist-nets was therefore the approach adopted for this survey. Specifically, up to 4 x 60' mist nets were set in a single line in a 2 metre wide ride in the Phragmites beds at each site during visits over the survey period.

During the survey, 11 visits were made to Uskmouth and the two sites at Llangorse Lake were visited on 14 and six occasions respectively. Most were made in August to coincide with the Aquatic Warbler passage period.

Morning visits started approximately one hour before dawn continuing for a minimum of four hours post dawn. During visits a low volume tape recording of Aquatic Warbler song was played to attract birds to the catching area.

Results

Uskmouth reedbeds

Eleven visits were made between 30 July and 9 September. In addition to eight early

morning visits, the Goldcliff Ringing Group undertook three evening ringing sessions starting in late afternoon. These were shorter than morning sessions and generally lasted approximately 3 hours and concluded at dusk. Although no visit resulted in the capture of an Aquatic Warbler, they did nevertheless capture a variety of reedbed species – shown in Table 1 below. The monitoring involved 31 person days of four individuals.

Good numbers of both Sedge and Reed Warbler were trapped and other reedbed species of note included: four Common Grasshopper Warbler, 14 Cetti's Warbler, four Bearded Tit and 10 Reed Bunting.

Sedge Warbler numbers were very high with over 100 being trapped on three different mornings. The catch of 141 new birds on 4 September equalled the all-time highest catch for the species trapped at the site - set originally in Aug 2006. What was surprising was the timing of this catch - it being unusual to have such high numbers in September. This suggests that the species had a good breeding season. In contrast, Reed Warbler numbers were down on recent years - the species appearing not to have done very well during the breeding season. Similarly, Cetti's Warbler numbers were down, no doubt as a consequence of the harsh winter weather.

Other things of note included the trapping of eight control Sedge Warblers (one of which having a French ring) and three control Reed Warblers. A Sedge Warbler showing full wing moult was unusual given that the species generally moults in its wintering grounds in sub-saharan Africa.

A public awareness event was held at the Newport Wetland's Open Day on 10 July that drew attention to reedbed bird species and the project.

Table 1: Numbers of reedbed species trapped at the Uskmouth reedbeds during monitoring sessions in 2011

Date	Cetti's Warbler	Grasshopper Warbler	Reed Warbler	Sedge Warbler	Bearded Tit	Reed Bunting	Yellow Wagtail
30/07	2	1	34(2)	109	0	6	0
06/08	1	0	16	126(3)	0	0	0
12/08	0	0	23(1)	51(3)	0	1	0
17/08(e)	(1)	0	15(3)	24	0	0	0
21/08	0	0	47(6)	41(2)	0	0	0
24/08(e)	0	0	8(4)	12	1	0	0
25/08	3	3	38(9)	62(4)	0	0	0
29/08	1	0	38(3)	47(6)	3	2	0
03/09	2(2)	0	20(1)	20(1)	0	0	0
04/09	1(1)	0	22(7)	141(9)	0	1	0
09/09(e)	0	0	5(2)	8(1)	0	0	15
Totals	10(4)	4	266(38)	641(29)	4	10	15

Note: numbers in brackets relate to additional birds that were retrapped/controlled.
(e) = evening visit

Llangorse Lake

Two different sites were monitored, the "jetty" site and RB2. A total of 14 early morning visits were made to the jetty between 30 July and 3 September. Six early morning visits were made to RB2 between 29 July and 2 September. No Aquatic Warbler was caught.

Large numbers of Reed Warbler breed at Llangorse Lake, though relatively few Sedge Warblers are found in the area. For the first time, the number of Sedge Warbler caught exceeded the number of Reed Warbler, suggesting that this species had a more successful breeding season. In addition, 4 Cetti's Warbler, 5 Common Grasshopper Warbler and 28 Reed Bunting were ringed. The Cetti's Warbler catch is the Group's second highest (after 2010) and confirms that the species survived the adverse winter weather, at least two pairs bred successfully (based on moult timing of the juveniles caught). The Reed Bunting captures confirms Llangorse Lake as an important breeding site for this species. Some captures of "non reedbed" species were also made – 33(7) at the jetty and 64(22) in RB2, both much smaller totals than in recent years suggesting a poor breeding season.

In total the monitoring involved 35 person days of 11 individuals.

Table 2a: numbers of reedbed species trapped at Llangorse Lake during monitoring sessions in 2011 (jetty site)

Date	Cetti's Warbler	Grasshopper Warbler	Reed Warbler	Sedge Warbler	Reed Bunting
30/7	(1)	0	23(4)	12(2)	6
05/8	1	0	15(4)	26(1)	0
08/8	(1)	1	9(2)	18	0
12/8	1	0	9(1)	14(1)	0
15/8	0	0	8	25	2(1)
16/8	0	0	4	4	0
17/8	0	0	9	10	1
18/8	0	0	10(1)	14	0
22/8	0	0	19(2)	10	3
24/8	0	1	7(2)	10	3(2)
25/8	0	0	9(1)	10	0
28/8	0	0	1(1)	2(1)	0
29/8	0	1	9(2)	7	0
02/9	0	1	7(1)	5	0
Totals	2(2)	4	139(21)	167(5)	15(3)

Note: numbers shown in brackets relate to additional birds that were retrapped

Table 2b: numbers of reedbed species trapped at Llangorse Lake during monitoring sessions in 2011 (RB2 site)

Date	Cetti's Warbler	Grasshopper Warbler	Reed Warbler	Sedge Warbler	Reed Bunting
29/7	(1)	0	20(2)	24	2(2)
06/8	1(1)	0	20(7)	9	3
14/8	0	0	21(6)	9	4
21/8	0	1	20(7)	22(1)	2(1)
26/8	(1)	0	5(4)	5(1)	(1)
02/9	1	0	7(8)	10(1)	1
Totals	2(3)	1	93(34)	79(3)	13(4)

Note: numbers shown in brackets relate to additional birds that were retrapped

Discussion

On migration, Aquatic Warblers follow a westerly route through western Europe including the UK, and winter in west Africa south of the Sahara. Monitoring for the species in Wales has been limited, but when undertaken birds have been recorded at key sites such as Llangorse and Uskmouth.

At the time of writing this report, there were no publicised records of Aquatic Warbler in Wales during 2011. In fact, there were none in the UK away from the 7 birds recorded on the south coast of England.

Table 3. Reports of Aquatic Warblers in England during 2011

17 August	1 seen Exminster Marshes, Devon
20 August	1 ringed at Lytchett Bay, Dorset
22 August	1 (juv.) ringed at Marazion Marsh, Cornwall
23 August	1 (juv.) ringed at Marazion Marsh
3 September	1 (juv.) South Milton Ley,
9-11 Sept.	2 St Agnes, Isles of Scilly,

Action for Wildlife notes that although the Aquatic Warbler does not breed in the UK, the sites where it is regularly recorded whilst on passage are of considerable importance as they provide suitable habitats for feeding and resting. The biodiversity action plan for the species calls for the protection of all key passage sites through their designation as Sites of Special Scientific Interest or nature reserves. The Uskmouth reedbeds are part of CCW's Newport Wetlands Reserve, which is a designated National Nature Reserve and Llangorse Lake is a designated SSSI.

A key aim in Action for Wildlife is to ensure that recognised Aquatic Warbler passage sites are maintained through careful management. Advice on good management practice to safeguard and develop habitat for passage Aquatic Warblers was sought for English south coast sites during the winter of 2009 (Le Nevé et al. 2009). We suggest that a similar approach be considered by CCW for known passage sites in Wales.

Recommendations

Recommendation 1: Public bodies and voluntary/third sector bodies should consider how annual monitoring for Aquatic Warbler might be taken forward in the future at key sites in Wales.
Recommendation 2: CCW should consider management prescriptions for the species at its own sites and give consideration to providing management advice to landowners of other key passage sites in Wales to ensure appropriate habitat for migrating Aquatic Warbler.
Recommendation 3: Progress on monitoring for the species and action taken to manage key sites should be reported in "The State of Birds in Wales".

Acknowledgements

Financial support for the survey was provided by the Welsh Ornithological Society who contributed £100 under its small grants scheme towards the ringing groups' costs in undertaking the survey. The Goldcliff Ringing Group would like to thank the staff at the Newport Wetlands Reserve for access to the site and continued support. The Llangorse Ringing Group is grateful to the following landowners for allowing access (Brecon Beacons National Park, Nigel Gervis and Roger Williams).

Bird ringers who undertook the survey were: Richard Clarke, Darryl Spittle, Vaughan Thomas and a trainee at Uskmouth; and, Ron Clevely, Jerry Lewis, Alan Lowe and Jeremy Richards (with the help of seven other trainee ringers) at Llangorse Lake.

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Survey of the Teifi Marshes to target passage Aquatic Warblers

Richard Dobbins on behalf of the Teifi Ringing Group 2011

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Summary

Following the capture of two Aquatic Warblers *Acrocephalus paludicola* on the Teifi Marshes reserve in August 2010 a study was set up to cover the autumn migration period in 2011. Despite increased effort during 2011, no Aquatic Warblers were caught. However the study produced some meaningful data of other species either resident or passing through the reserve on migration.It is planned that the same monitoring will be repeated annually.

Crynodeb

Ar ôl dal dau Delor y Dŵr *Acrocephalus paludicola* ar warchodfa Corsydd Teifi yn Awst 2010, sefydlwyd astudiaeth dros gyfnod mudo yr hydref yn 2011. Er gwaethaf mwy o ymdrech yn 2011, ni ddaliwyd Telor y Dŵr. Er hynny, cynhyrchodd yr arolwg wybodaeth ddefnyddiol am rywogaethau eraill, yn byw ar y warchodfa neu'n symud trwyddo wrth fudo. Bwriedir parhau'r monitro yma yn flynyddol.

Introduction

The Aquatic Warbler is the rarest and the only globally threatened passerine bird found in mainland Europe. Once widespread and numerous in fens and wet meadows throughout Europe, the Aquatic Warbler has disappeared from most of its former range.

The only regular wintering site proven so far is situated in the Senegal delta in and around the Djoudj National Park. Here, at least a third, but probably the major part of the global population winters. This is of particular interest as a Sedge Warbler ringed on the Teifi Marsh was controlled at Djoudj proving a migration link between the sites.

Important work was done in England between 2006 and 2008. Monitoring of passage Aquatic Warblers took place on a number of sites across Southern England, including the two Special Protection Areas designated for Aquatic Warbler – Marazion Marsh and Icklesham. As a result, a monitoring protocol was developed with better links with Aquatic Warbler work in Europe. Current management at these sites was reviewed and recommendations for habitat management to improve opportunities for Aquatic Warbler were made.

Conservation work in the UK is recognised as an important part of international effort to support this species. Much of this effort is focused on conserving and managing the areas of suitable wet fen and meadows on the breeding ground, but a key aim in CCW's Action

for Wildlife (1997) was to ensure that recognised Aquatic Warbler passage sites in the UK are maintained through careful management.

Monitoring for Aquatic Warblers has been carried out at Uskmouth and Llangorse Lake for several years. Also between 2000 and 2006 a large study was carried out at Kenfig Pool entailing ringing every day with 1,000 feet of net. Our aim was to see if migration through a more westerly reed bed was comparable. We also looked at work being carried out in France (ACROLA programme) which monitors Aquatic Warbler migration.

Background to the project

During August 1995, three Aquatic Warblers were trapped and ringed on the Teifi Marshes on passage. Since then, no work has been done on attempting to record their passage through West Wales. In 2010, two further Aquatic Warblers were trapped in an area of the reed bed not previously studied. This is known as the "Mallard run" and runs from Mallard hide across the reed bed adjacent to a fairly new pond.

In 2011, The Teifi Ringing Group decided to set up a specific project to explore autumn

Figure 1. Aerial photograph of the Teifi marshes

passage through this wet reed bed on the Ceredigion part of the reserve. Cetti's Warblers *Cettia cetti* and Grasshopper Warblers *Locustella naevia* breed nearby. Important numbers of Reed Buntings, *Emberiza schoeniclus* breed, roost and appear to pass in large numbers through the study area. The reed bed has the largest Reed *Acrocephalus scirpaceus* and possibly Sedge Warbler *A. schenobaenus* breeding and passage population in West Wales. While the project was not looking specifically at these key species it was hoped that they would be caught in significant numbers to be able to provide data on their use of this habitat.

Method

Four 60 foot nets and one 30 foot net were erected in a two metre ride through the reeds. An MP3 player with a recording of Aquatic warbler song was used to lure the birds.

During the core monitoring period of August the Teifi Ringing Group undertook 20 visits during August with the assistance of visiting ringers. Most sessions were of a couple of hours from dawn but some evening sessions were also carried out until dusk. Initially only these August dates were going to be included in the study but on reviewing the numbers of birds caught at the same site from 20 July to 20 September it was apparent that the numbers were significant and are included in Table 2 and commented on in the discussion.

Figure 2. A thirty foot net in reeds

Results

No Aquatic Warblers were caught in 2011 but a good number of other reed bed species were caught for year on year comparison.

Table 1. Birds ringed in August in comparison with the previous year

	Sedge Warbler		Reed Warbler		Reed Bunting		Grasshopper Warbler		Cetti's Warbler	
Aug.	2010	2011	2010	2011	2010	2011	2010	2011	2010	2011
2nd	4		3	2						
3rd	18	18	12	6	2	1				
5th		53	5	3				1		
6th										
7th	6	19		2	1	2				
8th	38	17	16	2	5					
9th		8								
10th	2	35	6	4						
11th	38	11	14	2	2	2				
12th		10		5						
13th		26		6				1		
15th	12	15		3						
16th	17	2	3	1						
17th	8	17	6		5			1		
18th	67	23	11	5		1				
19th		17		4						
20th	3	20	1	3		1				1
21st	11	23	5	4	1	2		1		
22nd	1		3							
23rd	7	9		3						
24th	4	6	2	2						
25th	10		2		2					
28th		1		1						
30th	6		1							
31st	13		4							
Totals	265	323	94	58	18	9	0	4	0	1

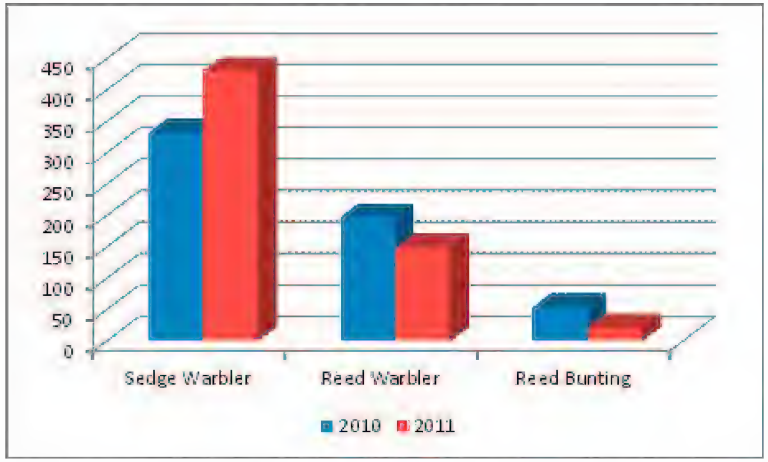
Table 2. Birds ringed from 20th July to 20th September outside the original study time of August

	Sedge Warbler		Reed Warbler		Reed Bunting		Grasshopper Warbler		Cetti's Warbler	
July	2010	2011	2010	2011	2010	2011	2010	2011	2010	2011
20th		10		19		3				
21st		13		12		2		1		
22nd										
23rd		2				3				
24th	1	10	6	21	4	3		3	1	
25th	19		35	5	11					
26th		16		4				1		
27th		10		3		1		1		
28th										
29th	4	26	6	10	5		1	1		
30th	9	2	16	3	11					
31st		8						1		
Totals	33	87	63	77	31	12	1	8	1	0
Sept										
1st	7		7		1					
2nd	1		1							
3rd	8		4							1
4th		14	2	3						
5th	2		4							
10th		4								
12th	2		4		2					
13th	3		5							
15th		2								
16th	2		3							
17th	2		4							
18th	6		6		1					
Totals	33	20	40	3	4	0	0	0	0	1

	Sedge Warbler		Reed Warbler		Reed Bunting		Grasshopper Warbler		Cetti's Warbler	
	2010	2011	2010	2011	2010	2011	2010	2011	2010	2011
Total all Dates	331	430	197	148	53	21	1	12	1	2

Table 3. Total of key reed bed birds ringed during autumn migration at Mallard

Figure 1. Numbers of key reed species caught during autumn migration in 2010 and 2011 at the Mallard run



Including data from the five CES sessions in a different part of the reserve (Table 4) this positively correlates with our Mallard data.

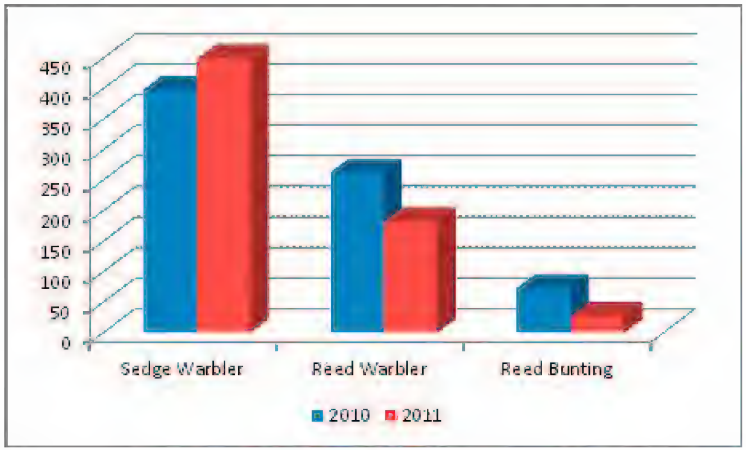
Table 4. Key reed bed species ringed at both sites on the Teifi Marshes reserve during autumn migration

	Sedge Warbler		Reed Warbler		Reed Bunting	
	2010	2011	2010	2011	2010	2011
TOTAL FOR ALL RESERVE	398	449	262	182	73	27

Of particular note is the apparent significant decline in Reed Warblers despite increased effort in 2011. When numbers from all sites, particularly in Wales, are analysed by the BTO it will be interesting to see if our findings form part of a national trend. Figures for Reed Warblers at our CES site were compared with those at the Mallard Run in a wetter part of the reed bed. The decline was even more significant at the CES site.
Also noticeable was a decline in Reed Buntings. Again it is not possible to draw conclusions from two years data but the decline was totally within the mid September

period of movement that was noted in the first year. The increase in Grasshopper Warblers is purely due to increased effort by using a MP3 pre-dawn. Next year's data when the same method is used will be comparable. The Mallard Run does not provide suitable data for comment on the Cetti's Warbler population.

Figure 2. Numbers of key reed species caught during autumn migration in 2010 and 2011at both sites in the Teifi Marshes



Retraps were not included in the above results. When results including them were analysed they did not affect the trends discussed above however the impact of retraps will be considered in subsequent studies. As a matter of interest, regarding our study of Reed Warblers in the spring during the first CES the following was noted on the Teifi Ringing Group Blog

Reed Warbler, 10 trapped all 10 retraps - of these 6 were originally ringed in 2009 and retrapped in 2010, 2 were ringed in 2009 and not trapped in 2010, 2 were ringed in 2010.This correlates well with our early effort at the Mallard run, where the first three birds trapped were all retraps. In summary of 14 Reed warblers trapped in this very early part of the season 13 were retraps! These retrap figures were outside the remit of this project but show important site fidelity in the spring for passage and breeding birds.

Discussion

No other sites in Wales caught Aquatic Warblers in 2011 and there were only six records along the south coast of England. This could be partly explained by the difference in weather systems this year with no sustained South Easterly winds to cause drift migration. The major impact of weather on the passage of Aquatic Warblers was concluded after prolonged study at Kenfig. The birds probably moved straight through northern France with few reaching the UK. European groups have developed successful methods for

catching Aquatic Warblers. Our replication of these methods is likely to have been successful if birds had passed through the Teifi Marshes. Concentrating our effort in August covered the peak migration period this year as noted by The International Ringing Camp of the Seine Estuary whose results showed the passage of first year birds was later than usual, commencing around 13 August, with the peak numbers being encountered on 15 and 16 August, with 24 birds ringed. Out of a total of 82 Aquatic Warblers ringed there in 2011, six birds were ringed as late as the final morning of the Camp on 21 August. Looking at figures from ACROLA, 1000 Aquatic Warblers were ringed in France this year, representing 2% of the world population.

Our results provide some interesting figures that suggest regular monitoring of autumn migration through the Teifi Marsh reed bed in the future will provide important data both nationally and locally. The South and West Wales Wildlife Trust (SWWWT) is dependant on our efforts to identify this as an important staging post for Aquatic Warblers and other key reed bed species.

The Mallard run borders the only commercial reed cut on the reserve. The importance of this type of management in creating better habitat for passage Aquatic Warblers needs continual monitoring. The SWWWT fully supported this project and gained from local and national publicity for the Teifi Marshes Reserve following the trapping of the Aquatic Warblers in 2010.

Acknowledgements

Thanks to the Welsh Ornithological Society and Cardigan Town Council for financial support for this project. Also thanks to Nathan Walton, Reserve Manager at the Teifi Marshes. The survey work was carried out by the Teifi Ringing Group and visiting ringers, Oliver Fox and Richard Charles.

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Merlins in Mid and South Wales

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Figure 1. Adult pair of Merlins. *Painting: Andrew Ellis*

INTRODUCTION

I have always studied birds but I very rarely encountered a Merlin *Falco columbarius* unless one occasionally flashed by. During the late 1980's while working on Peregrines *Falco peregrinus* in mid and South Wales I started to encounter Merlins more regularly on the hills. A friend and then DOE officer informed me about a suspected crash in Merlin numbers in Wales. I had always been fascinated by Merlins, so at this point in the early 1990's I decided to do my own research, to try and determine where the birds nested and then the actual numbers of breeding pairs on mid to South Welsh upland moors, the reputed breeding area of these birds.

Before the iron age when the Welsh hills were covered in woodland, I believe that Merlins

nested in disused nests of other birds in these woods, but when the trees were felled to fuel the furnaces of the iron era, Merlins were forced to nest on the ground on open moorland, in dense Heather *Calluna vulgaris* or Purple Moor Grass *Molinia caerulea*.

STUDY AREA AND METHODS

I started my study in April 1992 contributing every spare minute I could afford. I probably walked 100s of miles through some of the roughest terrain in Wales, mile after mile of *Molinia* grass in some places higher than my knees often on steep treacherous peat bogs. Some of the areas I checked were a 2 hours car journey, then a 2 hour walk up on to the moor, which meant a 4 am start from home to get on to the moor at an appropriate time to start searching for the birds, sometimes I camped on the moors to save this 4-hour trek each day, and to get an early start.

Firstly I searched areas where I had encountered birds while working on the Peregrines during the breeding seasons in past years. I was informed by old bird watchers that Merlins were faithful to a favoured nest site for many years, so the places I had previously seen them was a good place to start. Most areas drew blanks but the occasional site gave me a lead that Merlins were present - bird plucking, castings containing bird remains or streaks of droppings on fence posts or prominent rocks. These signs were not always a guarantee that a Merlin was breeding in the vicinity as Sparrowhawks *Accipiter nisus* use the moors to hunt small birds and also pluck their prey before eating it, leaving chalky streaky droppings on prominent places. Moreover, juvenile non-breeding Merlins hold a territory or are confined to a particular territory by dominant neighbouring breeding birds.

Figure 1. Whitewashed Merlin stone: a good indicator of an active territory. *Photo: Paul*

I began broadening my search to other suitable upland moorland. I soon learnt that the best time to locate Merlin breeding territories is in April, before the birds start incubating eggs, when they are very vocal, especially the female who calls continually to the male to bring her food. In return he often does a display flight chasing prey or warding off other birds. Once Merlins are sitting on eggs they become very secretive and are very rarely seen (so secretive that a friend of mine passed a comment that they must walk everywhere). Another good time to locate Merlin territories is when they have large young. Then both parents bring in food on a regular basis, calling as they arrive with the food. One of the best guides to finding Merlin breeding locations are Ravens *Corvus corax*, Buzzards *Buteo buteo* or Red Kites *Milvus milvus*. Merlins will not tolerate these birds anywhere near the vicinity of an active nest, driving them off by furiously dive bombing and calling. The birds are so intent on driving off these predators they become oblivious to giving away the whereabouts of their breeding territory.

RESULTS

During a 3-year period (1992-1994) I located 14 active Merlin sites. All of the pairs used disused nests of either Magpie *Pica pica* or Carrion Crow *Corvus corone* on moorland forest edges, sometimes 100-200 m into the forest block, or very occasionally in a disused nest in a Hawthorn *Crataegus monogyna* or Rowan *Sorbus aucuparia* out on the moor. There were no nests on the ground in my study area during this period. Previously it was thought most nests were on the ground. This was why there was concern over a crash in numbers as surveys carried out on heather moors showed that these no longer accommodated breeding Merlins. They had all returned to their ancestral tree sites, where they were safe from Foxes *Vulpes vulpes*, Stoats *Mustela erminea* and other ground patrolling predators. One of my colleagues reported newly born ground-nesting Merlin chicks being eaten by an Adder *Vipera berus*.

Most of the nests I found were in Sitka Spruce *Picea sitchensis* trees 3 m to 15 m in height. One pair which had been disturbed from its regular nest site in Sitka Spruce by the construction of sheep pens had alternately nested in a disused Carrion Crow nest in an Oak *Quercus sp*. at the edge of a broadleaved wood on to the moor. A few pairs did nest in scattered Hawthorn or Rowan trees out on the moor. Merlins nesting in disused corvid nests well into the forests had a greater success rate than those in nests on the forest edge, probably due to being more sheltered from the weather. Nests in Hawthorn or Rowan on the moors, usually failed in bad spring weather. Weather plays a massive part in the success of breeding Merlins. Continuous rain in May can wash out a nest of incubating eggs or saturate a nest of young chicks causing them to chill and die; it also prevents the parents from hunting.

Male and female Merlins, as all raptors, differ in size, the female being the larger; a female in prime condition can be up to 200 g while the male is only 155 g. Adult birds in both sexes vary slightly in colour but all have the prominent falcon moustache. Young in their first year all have dark brown backs and creamy speckled breasts, but after their first moult in their second year the females take a very similar colour to their infant plumage which can vary from a milk chocolate colour to a dark chocolate colour back, also the

breasts can be almost white to a dark cream. The males change colour completely but also have a dark and light phase, ranging from a dark to a light blue back and a white to a red breast.

Figure 2. Typical nesting territory on forest edge. *Photo: Paul Haffield*

The Merlin's diet consists mainly of birds, although I have seen juvenile birds catch and eat moths and butterflies but do not know whether this was just cat-play or hunger. A trout fisherman from Yorkshire told me that during calm evenings while out fly fishing on the river, an adult male Merlin regularly used to hunt bats along the stretch of river he fished. Prey birds taken by Merlins can be as large as Lapwing *Vanellus vanellus* or Mistle Thrush *Turdus viscivorus* taken by female Merlins on wintering grounds, and as small as Goldcrest *Regulus regulus*. During the breeding season the diet consists largely of moorland birds, mainly Meadow Pipit *Anthus pratensis*, but also Skylark *Alauda arvensis*, Wheatear *Oenanthe oenanthe*, Stonechat *Saxicola torquatus* and Whinchat *S. rubetra*. In areas where moorland prey is not so abundant any small passerines are taken, such as Coal Tit *Periparus ater*, Siskin *Carduelis spinus*, Redpoll *C. flammea* and Chaffinch *Fringilla coelebs*, which breed in the upland forests.

Merlins are usually faithful to a favoured moor, returning year after year in spring to breed, the males are usually the first to arrive back on territory to defend it from rival males, and await their females. Their arrival usually coincides with the return of their food source, which return from their wintering grounds to breed on the upland moors in Spring, On one particular moor in South Wales, I climbed a Merlin nest on 14 March which had been occupied the previous year, only to have a male Merlin appear over head and start mobbing me, this was an exceptionally early bird back on its territory. Merlins spend the winter alone hunting over farmland, estuaries and other coastal areas.

In late summer the Merlin's prey leave the moors when their food starts to become scarce and move to other countries or to parts of the UK where their food is more abundant. The Welsh hills become so desolate in winter, that there is not enough food to support Merlins. During the winter months, the only birds on these upland moors are migrating parties of Dotterel *Charadrius morinellus* and Golden Plover *Pluvialis apricaria* or the resident Raven and Carrion Crow which survive on dead sheep that die in the harsh winter conditions.

Figure 4. Plucking post on forest edge with feather remains of Wheatear and Skylark. *Photo: Paul Haffield*

Merlins typically breed in their third calendar-year i.e., when they are two years old, but there are occasional records of birds breeding in their second year, these usually being young females. A single male which has returned to its breeding territory in spring and found it has no mate, will sometimes solicit a juvenile bird which has strayed into its territory, to breed with it.

Merlin eggs are mottled red in colour as traditional in most falcons but do vary slightly in colour and weigh approximately 21 g (fresh-laid weight) measuring approximately 30 x 40 mm; the eggs lose about 16% of their weight during incubation before the chick hatches. Clutch sizes vary, mainly 4 or 5 but occasionally 6 eggs are laid. The eggs hatch at 29 days and the young branch at about 24 days; they can fly at 30 days but are not fully developed until 42 days old. The female carries out most of the incubation, but sometimes the male incubates for long periods throughout the day. The female incubates during the night, until the male relieves her of her duties in the morning either by bringing her food and taking over brooding, while she eats, stretches her wings and has a bathe, or just taking over brooding duties allowing her to go off and hunt for herself. The male's period of incubation varied from as little as 30 minutes to as long as 5 hours, with up to two shifts of incubation in a day. Occasionally a male will bring food to the nest and feed the female while she incubates.

On hatching the chicks are downy with an egg tooth on the upper part of the beak, which disappears after about 12 days. They start feather development at about 12 days old with the primaries emerging from their sheaths when the chicks are about 15 days old. Both parents feed the young, but when the chicks are small the male does most of the hunting.

He returns to the nest site after a successful hunt carrying a bird which he has partly plucked calling with a high pitched 'keek, keek, keek' to alert the female of his arrival with food. She then calls back to him, leaves the nest to take the food, which she finishes plucking and takes to the nest to feed the young. When the young are older and demand more food both parents take part in hunting.

Merlins catch their prey by flying it down and totally out manoeuvring it in the air, unlike most falcons, which stoop at their prey. On one occasion on the moor, I saw a female Sparrowhawk chase a Skylark, which out flew the hawk, when a female Merlin appeared and turned the table. The lark was completely outmatched in the air by this bird, it twisted, jinked and turned to elude the Merlin, but to no avail. Once the Merlin had taken the lark, the hawk saw an opportunity of an easy meal and chased the Merlin but again the hawk failed. The Merlin outflew the Sparrowhawk whilst having the lark clutched in its talons. Possibly the finest sight I have seen while watching birds is a male Merlin single out a Starling *Sturnus vulgaris* from a flock and start a very high-speed chase, mastering it in the air before taking it.

I also discovered that Merlins bathe almost every day during the breeding season as do most other falcons, keeping their plumage in good condition, as damaged feathers could mean a failure in hunting.

Figure 5. Merlin chicks aged approximately 18 days old (14 June 2011). *Photo: Paul Haffield*

Figure 6. Merlin chicks aged approximately 24 days old (20 June 2011). *Photo: Paul Haffield*

During medieval times when falconry was a sport as well as source of catching food for the table, a Merlin was called a lady's bird. Ladies would fly trained Merlins at Skylark and being a very persistent and determined hunter, would provide one of the most thrilling high speed chases of any falconry bird. The lark being one of the Merlin's most challenging contenders would try to outfly its pursuer firstly by singing and ringing high into the sky trying to convince the Merlin that it was unafraid and able to out fly it. Unfortunately for the lark the Merlin would follow it, high into the sky, (this was called the ringing flight), until the lark realised its ploy hadn't worked; then it would stop singing and try a vertical stoop to the ground to escape its pursuer but again the Merlin would follow. Occasionally a fit lark would try this manoeuvre a second time but more often being so terrified, it would try and make cover, crashing into trees, bushes or even crawling under cattle or sheep, before being caught. Sometimes in their desperation to escape the Merlin, a lark would fly into the clothing of people watching the chase, in the hope the Merlin would give up the pursuit at the sight of a human.

I continued to monitor these sites throughout the 1990s, and I found that Merlins were producing young reasonably successfully, with the governing factor to fledging success, being, firstly the weather and secondly the availability of food. Pairs in Mid Wales produced smaller numbers of young than birds in the south. This was mainly due to a more densely populated area in my Mid Wales study area, creating more competition for food. In some South Wales areas where there was abundant prey, pairs often laid 5 eggs and produced five young, while in Mid Wales birds struggled to raise one chick. In 1993 I located three breeding pairs within 1 sq.mile. One pair laid 4 eggs but failed to produce any young, another pair laid 4 eggs and only produced one young, while the remaining

pair laid 5 eggs to produce two young. This breeding area was Molinia-dominated providing little or no habitat for prey species such as larks, pipits and Wheatears. The majority of prey species taken by the Merlins in this area were forest species as Chaffinches and Siskins, suggesting that there were not enough moorland birds to sustain a large family of Merlins. In my South Wales study area the moorland vegetation was less dense providing open areas of grassland for Skylarks, rocky outcrops and dry stone walls for Wheatear and Heather and scattered grass for pipits and chats. Pairs breeding in this terrain regularly produced four and five chicks per nest and one female regularly produced 6 eggs and fledged five chicks.

Figure 7. Former Merlin territory: habitat has remained the same but this forest has been colonised by Goshawks. *Photo: Paul Haffield*

Merlins in my study area seemed to have no immediate threat from predators, other than foxes, which I regularly found curled up asleep under a Merlin nest, awaiting a daytime snack of either a prey bird kicked off the nest by squabbling young or even a careless young Merlin which had fallen from the nest. The occasional Hen Harrier *Circus cyaneus* used to have an attempt at catching a Merlin, but always failed. The abundant Peregrines on these upland moors, which accommodated every available crag seemed to ignore the Merlins, perhaps because of the large numbers of more easily caught Racing Pigeons *Columba livia* crossing the Welsh mountains every day racing or training throughout the Peregrine's breeding season.

Merlins maintained a level population throughout the 1990s in Mid and South Wales. If a pair disappeared from a particular forest after several years of successful breeding, another pair would soon take over the vacant territory. In the late 1990s and early 2000s

I noticed a slight decline in the number of breeding pairs. The numbers diminished every year throughout the 2000s. Keen to find out the cause of their decline, I decided to monitor individual nests more closely. The incubation success was still the same but the problem seemed to be at the chick fledging stage. Fledged chicks on forest edges seemed to disappear.

While watching young Merlins practise their hunting techniques on a South Wales moor in 2004, I encountered a large female Goshawk *Accipiter gentilis* out on the moor. I had seen Goshawks previously hunt racing pigeons on open mountains, circling high into the sky and then stooping at them as a Peregrine does. This bird did not do that, as she was after the young Merlins. She caught one with ease, oblivious to the both parent Merlins dive bombing and screaming. Returning to this territory at a later date I found no signs of young Merlins, but instead I found their plucked feather remains near the Goshawk's nest in the same forest. Discussing the Merlin decline with other raptor workers it became clear that this was not an isolated incident, as others had reported finding Merlin pluckings around Goshawk nests in forests and the subsequent disappearance of the small falcons from their traditional breeding territories. Similar studies in Northern England have shown that Goshawks can significantly affect the numbers of small falcons, like Kestrels *Falco tinnunculus* and Merlins, breeding in forests.

It is not just Goshawks that prey on Merlins, as I have also found their feather remains at Peregrine nest sites. Although Goshawks and Peregrines preyed heavily upon racing pigeons during the summer race season, the decline in racing pigeons passing through Mid Wales over the last decade has meant that Peregrines and Goshawks now rely more heavily on locally available prey. Merlins are the ideal size as prey for these larger predators.

I regularly found around 14 pairs of Merlin breeding in Mid and South Wales between 1992 and 2000. However, during my survey in 2011 I only found four breeding pairs in the same area. The breeding habitats within the survey area still appear suitable and continue to hold substantial numbers of prey species but what has changed significantly over the study period is the age and structure of the upland forests that, initially supported Merlin in thick, dense, stands of Sitka Spruce. As the forests have matured and gone through thinning and complete crop rotations, the woodlands have become increasingly suitable for breeding Goshawks, so that, in many instances, they now nest in close proximity to Merlin breeding sites, or, sadly, former breeding sites. My conclusion is that predation by larger raptors is the most likely cause of the breeding population decline in the forests of Mid and South Wales. It would be enlightening to study the distribution and diet of Goshawks in the forests that formerly held breeding Merlins.

Acknowledgements

I thank Andrew Ellis for his painting of Merlin at the start of this article and Roy Blewitt for his photo of a Merlin feeding chicks.

An historical record of Black-tailed Godwit breeding in Wales

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In their comprehensive account of the Birds of Wales, Lovegrove et al. (1994) stated that the "breeding of Black-tailed Godwit (*Limosa limosa*) has not been proved in Wales but there are three possible occurrences". One of these related to an occurrence at "Afonwen (Caernarfonshire) in the late 1940s when an egg collector claimed to have found a nest; unfortunately confirmation is lacking". This incident undoubtedly refers to Charles Harold Gowland, an egg collector and dealer from the Wirral who is perhaps best known in Wales for his pioneering attempts to bolster the Red Kite *Milvus milvus* population by importing 74 Red Kite eggs from Spain in 1927-28 and placing them in Buzzard *Buteo buteo* nests in central Wales (Lovegrove, 1990). Gowland was an egg dealer who, from 1946 to 1953, published a magazine called Birdland for the 'assistance and encouragement of the junior naturalist', but which also served as a marketing vehicle for his egg sales to schoolboy collectors (Cole & Trobe, 2000). An article written by Gowland (1950) in this obscure journal provides confirmation that Black-tailed Godwits have bred in Wales.

In an issue of Birdland, dated September 1950, Gowland described how he discovered breeding Black-tailed Godwits. No site name is mentioned, but he does state that the "marsh is no different from dozens of other similar marshes and bogland in North Wales". On this particular trip, he was evidently taking his companions on an egg collecting trip to one of his favourite coastal haunts on the Lleyn Peninsula, which included a visit to a small island just off the coast. On the 29th May 1950 he set out with three companions to cross an area of boggy, grazing pasture on the mainland to reach the shingle beach beyond. Walking over the ground they spotted a Black-tailed Godwit on the fringe of a small lake, which flew off over the surrounding marshland when they approached to within "20 or 30 yards" of it. Gowland noted that in almost 30 years of visiting this district between April and the end of June that he had never before seen a Black-tailed Godwit on this marsh, a fact that increased his suspicions that this might not have been a late-lingering migrant. Returning back over the marsh later the same day, Gowland caught a glimpse of a 'large grey bird flying low before it disappeared behind a rise in the ground', which was too far away for positive identification but he felt certain that it was a Godwit. So, he went directly to the small pool where he had seen a bird earlier and found a Godwit feeding in about three inches of water, and he was now convinced that there was a pair present on the marsh.

On 8th June 1950 he returned to the marsh but after searching the area for almost six hours he hadn't seen a Godwit. Nevertheless, he decided to try again the following morning and on approaching the marsh he saw the Godwit at the feeding pond where he had first seen the bird 12-days previously. He searched the marsh and watched the feeding bird until late afternoon but saw nothing more before giving up. However, he returned to the area at 8 pm from a different direction and scanned the marsh with

binoculars. At that point a Carrion Crow *Corvus corone* flew over the marsh and this caused a Black-tailed Godwit to mob this potential nest predator. Having now narrowed the potential nesting area, Gowland again started to search and "after about five minutes' patrolling the hen bird flew up when I was a distance of about 4 yards away. There, well hidden in a clump of marsh grass, the ends of which almost touched at the top forming a slight canopy, was the nest, containing four eggs". He examined the eggs and found that one was 'chipping' and another was 'starred'; the fact that the eggs were hatching probably accounted for the unusual close-sitting behaviour of the female. He photographed the nest and nest site (the pictures are included in the Birdland article describing this find).

On the 19th June 1950 he returned to the site but found that all four eggs had hatched and the chicks had left the nest; both adults mobbed him closely when he was in the nest vicinity. As a post-script to his article Gowland mentioned that he had received information that a young Godwit, still showing traces of down, had been shot from a group of three similar birds on the Fylde coast of Lancashire in July 1950. Gowland remarked that that these birds "could not possibly have been the young hatched in my nest in North Wales as the distance between the two places is well over 100 miles".

Gowland visited the breeding marsh again on 15th May 1951 and saw nothing of the birds, but during a second visit on the 3rd June 1951 his companions saw a single Black-tailed Godwit in the same area as the previous year's nest and he concluded that the birds "probably nested again" (Gowland, 1951).

It is interesting to note that the discovery of several pairs of Black-tailed Godwits breeding in England and Scotland in the 1940s and 1950s coincided with a massive increase in the British wintering population and a significant increase in the Icelandic breeding population, the country of origin for most of the wintering Godwits in northern and western Britain (Bannerman, 1960). However, it is now thought that the Black-tailed Godwits breeding on the Fylde coastal marshes belong to the nominate, continental race *limosa* and not the Icelandic race *islandica*. Nevertheless, the increasing numbers of *islandica* wintering and summering on Welsh estuaries gives hope that breeding could again take place on some Welsh coastal pasture or marsh.

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